

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF NORTH CAROLINA
1:12-cv-1020

HEART IMAGING TECHNOLOGIES,)
LLC,)
)
Plaintiff,)
v.)
)
MERGE HEALTHCARE)
INCORPORATED,)
)
Defendant.)
)
)

**DECLARATION OF
ATUL AGARWAL**

Atul Agarwal declares as follows:

INTRODUCTION

1. I am an adult; I reside in Mississauga, Canada. Since July 2004, I have been employed by Merge Healthcare Incorporated (“Merge”). A copy of my resume, containing an accurate and current description of my education and work experience, is attached as **Exhibit 1**.

2. My job responsibilities at Merge included overseeing the development and maintenance of Merge’s iConnect® Access (formerly known as Cedara WebAccess™) and Merge Honeycomb™ Image Sharing products (“Accused Products”).

3. I understand that Heart Imaging Technologies, LLC (“HIT”) has filed the above lawsuit (“Lawsuit”) against Merge and has asked the Court to temporarily enjoin Merge from making and selling the Accused Products because

those products allegedly infringe claim 1 of HIT's U.S. Patent No. 8,166,381 ("381 Patent").

CLAIM 1 OF THE '381 PATENT DOES NOT HAVE A PLAIN MEANING

4. The "first element" (as characterized by HIT's expert, Dr. Grizzard) of Claim 1 states: "*receiving at a first computer a plurality of image series resulting from a patient medical imaging procedure, each image series comprising one or more digital medical images in a format that is incompatible with displaying in an Internet web browser.*" Dr. Grizzard refers to DICOM format images as being representative of digital medical images that are in a format incompatible with displaying in an Internet web browser. (Grizzard Decl. ¶8) Dr. Grizzard states that web browsers he tested "were unable to display the DICOM-formatted images," and that "it is widely-known in the field of radiology that DICOM-formatted images cannot be displayed in a web browser without the assistance of an auxiliary program."

5. However, even if an "auxiliary program" is needed to display a DICOM format image using the web browsers listed by Dr. Grizzard, this does not mean that DICOM format images are *incompatible* with "displaying in an Internet web browser." DICOM images have long been readily viewable using Internet web browsers with an appropriate tool (e.g., web browser plug-ins such as Flash, Java Applets, Silverlight, etc.). These tools are common mechanisms to enable web browsers to perform certain operations. The ambiguity in the language of Claim 1, as illustrated by the vagueness of such phrases as "incompatible with

displaying in an Internet web browser,” runs contrary to HIT’s position that Claim 1 has a “plain meaning.”

HIT MISCHARACTERIZES CLAIM 1 OF THE ‘381 PATENT

6. I understand that HIT alleges that the ‘381 Patent is directed to innovations “allow[ing] users to access medical images over the Internet using a zero-footprint viewer.” (Judd Decl. ¶4) According to the Declaration of Robert Judd, “zero-footprint” means “that the images can be viewed using a standard web browser, without the download of any additional plug-ins or other software.” (Judd Decl. ¶4).

7. Contrary to HIT’s position, Claim 1 of the ‘381 patent does not describe a “zero-footprint viewer” because Claim 1 can be interpreted to cover the use of Internet web browsers that utilize certain “plug-ins or other software.” That is, the language of Claim 1 does not exclude technologies that use certain web browser plug-ins.

8. The “third,” “fourth,” and “fifth elements” of the Claim 1 state “...without requiring software executing outside the Internet web browser on the second computer....” This statement does not preclude the usage of plug-ins such as Flash, Java Applets, Silverlight, etc. because such web browser plug-ins can be considered to be “software executing inside the Internet web browser.” Therefore, using such plug-ins would be allowed by the language “without requiring software executing outside the Internet web browser on the second computer.”

9. There are many examples of technologies that use software but that nonetheless function “without requiring software executing outside the Internet web browser,” as recited in Claim 1, including, but not limited to, the ActiveX-based implementation described in the prior art “leading textbook” referenced by Dr. Robert Judd (Judd Decl. ¶11): H. K. Huang, *PACS and Imaging Informatics: Basic Principles and Applications*, John Wiley & Sons, 2004, pp. 343-352. ActiveX is a browser extension developed by Microsoft that allows custom code to be automatically downloaded and executed within the browser. ActiveX “is a plug-in or other software” that could provide a web browser with desired capabilities “without requiring software executing outside the Internet web browser.” Contrary to HIT’s position, Claim 1 of the ‘381 patent is not directed to “zero-footprint” viewers, as the terminology is used by HIT, because Claim 1 does not exclude using “additional plug-ins or other software.” Claim 1 also does not exclude downloading “a plug-in or other software” that is executed inside the Internet web browser.

HIT DID NOT INVENT “ZERO-FOOTPRINT VIEWER” TECHNOLOGY

10. Even if we were to accept HIT’s position that Claim 1 covers a “zero-footprint viewer” (as defined and discussed by Drs. Judd and Grizzard), then HIT’s invention and “zero-footprint viewer” technology are described by at least the following prior art publications (dating from 1997 to 2004).

11. H. K. Huang, *PACS and Imaging Informatics: Basic Principles and Applications* (2004) (“Huang”), discusses the concept of a “zero-footprint viewer.”

This includes “receiving DICOM images on a first/server computer” (see *Huang*, pg. 344, Figure 13.6) and “providing to the user images for display in the user interface of the Internet web page, comprising a format that is compatible for displaying in an Internet web browser without requiring software executing outside the Internet web browser on the second computer” and “the images being converted to a browser compatible format before being transmitted over the Internet” (see *Huang*, pgs. 344 and 345, Sections 13.4.1 and 13.4.2, and Figure 13.6). The *Huang* textbook recognizes, for example, that “most web browsers ... support JPEG ... or GIF ... image rendering. ... The web site can use trigger processes to access information on the web server through the HTTP...” (see *Huang* pg. 344). *Huang* also discussed “a translator to convert DICOM images ... to HTTP.” As can be seen in Figure 13.6 of *Huang*, the “interpreter” that converts DICOM images” is on the web server, and the translation by the interpreter thus occurs on the web server prior to communication of JPEG and GIF images (images claimed to be “compatible with displaying in an Internet web browser”) to the web browser:

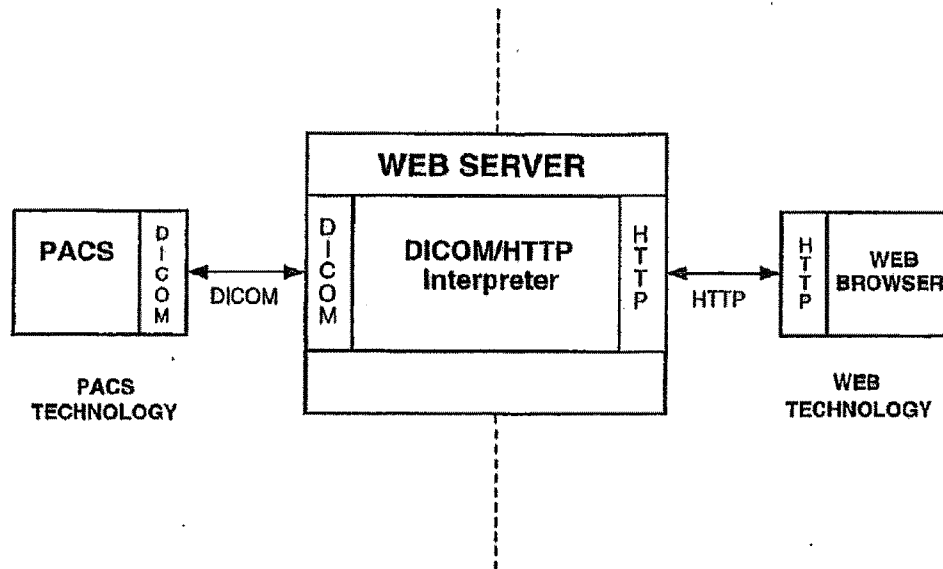


Figure 13.6 The basic architecture of a web server allowing web browsers to query and retrieve image/data from PACS through the web-based server. The DICOM/HTTP interpreter is the key component.

12. J. Zhang, J., Sun, J., & Stahl J., “PACS and Web-based image distribution and display,” *Computerized Medical Imaging and Graphics* 27 (2003) 197-206 (“*Zhang et al.*”) (**Exhibit 2**) further discusses the relevant features. For example, *Zhang et al.* discuss “receiving DICOM images on a first/server computer” (pg. 200, Figure 4, Section 3.2, and pg. 203, Figure 9) and “providing to the user images for display in the user interface of the Internet web page, comprising a format that is compatible for displaying in an Internet web browser without requiring software executing outside the Internet web browser on the second computer” and “the images being converted to a browser compatible format before being transmitted over the Internet” (see pg. 200, Section 3.2).

13. T. Sakusabe, M. Kimura, Y. Onogi, “On-demand server-side image processing for Web-based DICOM image display,” *Proceedings of SPIE* Vol. 3976 (2000) (“*Sakusabe et al.*”) (**Exhibit 3**) further discusses this. *Sakusabe et al.*

discuss “providing to the user images for display in the user interface of the Internet web page, comprising a format that is compatible for displaying in an Internet web browser without requiring software executing outside the Internet web browser on the second computer” and “the images being converted to a browser compatible format before being transmitted over the Internet” (pg. 360, Section 2 and Figure 1-3, and pg. 361, Section 3.1). *Sakusabe et al.*’s abstract clearly describes what Dr. Robert Judd explains is the essence of “zero-footprint viewer” technology: “that the images can be viewed using a standard web browser, without the download of any additional plug-ins or other software” (see Judd Decl. ¶4). Specifically, *Sakusabe et al.* state in their Abstract: We developed a Web-based medical image display system using Web browser and on-demand server-side image processing. All images displayed on a Web page are generated from DICOM files on a server, delivered on-demand. ... Real time update of images (zooming, window level/width change) with tracking mouse motion is achieved on Web browser without any client-side image processing which may be done by client-side plug-in technology such as Java Applets or ActiveX.”

14. HIT’s ‘381 patent itself seems to acknowledge the fact that “zero-footprint viewer” technology predates their invention (see ‘381 patent, col. 2, line 57 to col. 3 line 11) but they incorrectly believed that the ability to adjust the image brightness and contrast in a browser required “Java” (see HIT patent column 3 line 18 to 26). This is a clearly erroneous belief because a method to do

this without “Java” is described by *Sakusabe et al.* (see pg. 359 Abstract, pg. 362 Section 4, and pg. 363 Section 5).

15. E. Feingold, G. Grevera, R. Mezrich, S.C. Horii, S. Khalsa, L. Phan, “Web Based Radiology Applications for Clinicians and Radiologists”, Proceedings of SPIE Vol. 3035 (1997) (“*Feingold et al.*”) (**Exhibit 4**) also discloses the relevant features. For example, *Feingold et al.* includes “receiving DICOM images on a first/server computer” (see pg. 62 Figure 2 and pg. 63 Section 2.1) and “providing to the user images for display in the user interface of the Internet web page, comprising a format that is compatible for displaying in an Internet web browser without requiring software executing outside the Internet web browser on the second computer” and “the images being converted to a browser compatible format before being transmitted over the Internet” (see pg. 63 Section 2.1 and pg. 65 Section 2.3).

16. Features of Claim 1 of the ‘381 patent disclosed by *Sakusabe et al.* are exemplified by the following table:

Claim 1 Features (as put forth by HIT)	<i>Sakusabe et al. sample excerpts</i>
receiving DICOM images on a server	pg. 62 Figure 2
	pg. 63 Section 2
converting DICOM to “browser compatible” format	pgs. 63-64 Section 2.1
using a pointer to access a patient medical procedure	pg. 65 Section 2.3
providing a browser compatible web page that contains significant medical image viewer user interface elements such as navigational images (thumbnails) in response to the user selection of the pointer	pg. 66 Section 2.3

providing browser compatible images of an image series in response to the user selection of a navigational image (thumbnail)	pg. 66 Section 2.3.1
permitting the navigation of these displayed images	pg. 66 Section 2.3.1

17. According to Dr. Robert Judd, the invention of the ‘381 patent is a “zero-footprint viewer” that allows images to “be viewed using a standard web browser” (see Judd Decl. ¶4). Based on the above references, however, such systems were well-documented and implemented in projects at least as far back as 1997.

MERGE’S PRODUCTS DO NOT INFRINGE THE ‘381 PATENT

18. Even if we accept Claim 1 of the ‘381 patent as describing a “zero-footprint viewer” (as described by Dr. Robert Judd), then Merge’s products do not perform all of the steps required by Claim 1 of HIT’s patent.

19. For example, the “sixth element” of Claim 1 (using the “six element” framework of Dr. Grizzard) states “*wherein the medical image workstation enables user navigation among the plurality of navigational images and the one or more digital medical images of the image series to permit medical diagnosis from the one or more digital medical images without requiring software executing outside the Internet web browser.*”

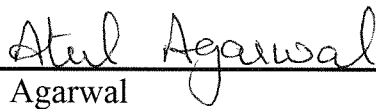
20. Even assuming for the sake of argument that the other elements of Claim 1 are satisfied, user navigation with the Accused Products requires “software executing outside the Internet web browser” because each time a user selects a thumbnail to navigate between different imaging series or navigates

between two medical images in an image series, the Accused products communicate with a server to retrieve new images. This is because only the thumbnails and medical images currently being displayed on the web browser are downloaded. Navigation that changes images currently being displayed requires retrieval of new images that replace prior images. Accordingly, other software *is* required (such as software on the web server that communicates with the web browser in response to the browser's requests for other images) to enable the user navigation of the sixth element of Claim 1.

21. Consequently, the Accused Products cannot be said to satisfy all the elements of Claim 1.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on January 22, 2013.



Atul Agarwal